PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Takuro NISHIMURA, et al.

Docket No: Q76591

Appln. No.: 10/620,412

Group Art Unit: 1724

Confirmation No.: 9610

Examiner: Robert J. Popovics

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For: SOLUTION FILM-FORMING METHOD

SUPPLEMENTAL DECLARATION UNDER 37 C.F.R. § 1.132

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Takuro NISHIMURA, hereby declare and state:

THAT I am a citizen of JAPAN;

THAT I attended the Graduate School of Engineering Science, Osaka University, Japan, where I obtained the degree of a Master of Engineering Science (Major Field: Chemistry) in March, 2000;

THAT I have been employed by FUJIFILM Corporation, where I hold a position as an engineer, and work on process technology for liquid preparing/feeding systems for film product material;

THAT I am familiar with the invention described and claimed in U.S. Application No. 10/620,412, and with the Office Action of October 10, 2007 and the rejection contained therein; and

THAT the following experimentation was conducted by me or under my direct supervision.

As shown in the attached sheet, Experiment No. 11 was conducted as a reference case, wherein filtering was performed without a filtering aid and only by using filtering paper, wherein the filtering paper had an absolute filtering accuracy of 10 μm. Also, Experiment No. 10 was conducted such that filtering was performed without a filtering aid and only by using filtering paper, wherein the filtering paper had an absolute filtering accuracy of 40 μm. As additional comparative data, Comparative Examples a-c are presented in which filtering quality data are added to the results of Examples 3, 2, and 7, respectively, as described in the specification, and Comparative Example d shows data that is newly added. As examples of the present invention, Example A is presented in which filtering quality data are added to the results of Example 1 described in the specification, and Examples B, C, D, E and F show data that are newly added.

In this regard, I note that as described in "Description of the Related Art" (see page 1, line 22 to page 2, line 5 in the present application in particular), when producing a cellulose acylate film used for a liquid crystal display device and a photosensitive material, filtration accuracy is required to be equivalent to or higher than the accuracy in a case that the filtering material (e.g., filtering paper) having an absolute filtration accuracy of approximately 0.01 mm is used.

However, as can be seen from Experiment No. 11, when conducting a filtration for a high-viscosity solution (generally 100 to 400 Poise) like a cellulose acylate solution, filtration life (filtering process amount) becomes extremely short. (In the following description, filtration life and quality of Experiment No. 11 will be used as reference.) Incidentally, foreign matters

larger than 10 μm are detected in Experiment No. 11 even though a filtering paper of absolute filtration accuracy 0.01 mm (10 μm) is used, because the absolute filtration accuracy deteriorates in filtering a gelled liquid such as a cellulose acylate solution.

In contrast, *by performing, prior to the filtering step, a step of precoating the filtration support in a thickness of from 0.5 to 10 mm using a precoat liquid in which a filter aid having an average particle size in a range of from 1 to 150 μm is dispersed* as recited in amended claim 1, a filtration accuracy equivalent to or higher than an accuracy of filtering using filtering material with absolute filtration accuracy of 0.01 mm can be achieved, and filtration life (filtering process amount) can be extended.

Specifically, the quality of Examples C and F (Experiment Nos. 7 and 9A, respectively) is substantially equivalent to the reference quality, and the quality of Examples A, B, D, and E is better than the reference quality.

In addition, filtration life (relative value when the filtration life of Example A is defined as 1.0) is significantly longer than the reference value (i.e., 0.4) in all Examples A to F.

On the other hand, Comparative Examples a to d are examples in which the condition of average particle size or precoat thickness of the present invention is not satisfied, and as can be seen from these Comparative Examples, filtering quality can be improved when the average particle size is small and precoat thickness is thick, but filtration life becomes extremely short under that condition. When the average particle size is large and precoat thickness is thin, filtration life can be extended but filtering quality extremely deteriorates.

That is, according to the amended claim 1, filtration accuracy equivalent to or higher than that provided by filtering material having 0.01 mm of absolute filtration accuracy can be achieved, while filtration life (filtering process amount) can be significantly improved.

As described above, the average particle size of filtering aid and precoat thickness are extremely important in improving filtering capability and filtration life, and such is not disclosed or suggested in The Handbook of Separation Techniques for Chemical Engineers, 2nd Edition (1988).

Thus, I conclude that the present invention provides unexpectedly superior results.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: Feb. 15. 2008

By: Takuro Nishimura
Takuro NISHIMURA

Attached Sheet: Experimantal Data
U.S. Patent Application No. 10/620,412

Experiment No.	Sample Name	Average Particle Size of Filtering Aid (μm)	Initial Filtering Pressure (Mpa)	Filtration Life (*4)	Filtering Quality (Number of foreign materials remaining in the filtered liquid)			Precoat Thickness (mm)
					over 20 μm	20 to 10 μm	under 10 μm	
1	Comparative Example a	0.5	0.80	0.50	0	2	2	2
2	Comparative Example b	155	0.20	1.20	4	20	22	2
3	Comparative Example c	70	1.00	0.10	0	1	1	15
4	Comparative Example d	70	0.05	–	Failure	Failure	Failure	0.05
5	Example A	70	0.30	1.00	0	9	3	2
6	Example B	1	0.50	0.70	0	2	4	2
7	Example C	150	0.21	1.15	3	19	20	2
8	Example D	70	0.25	1.20	0	9	5	1
9	Example E	70	0.73	0.75	0	8	2	10
9A	Example F	70	0.10	1.10	2	13	17	0.5
10	*2			1.00	4	21	25	–
11 (*1)	*3			0.40	1	10	15	–

*1: Reference case
*2: Filtering is performed only by a filtering paper of absolute filtering accuracy of 40μm
*3: Filtering is performed only by a filtering paper of absolute filtering accuracy of 10μm
*4: Relative value when the duration of Example A is set as 1.0

Remarks
(i) In the Comparative Example a, filtering quality data are added to a result of Example 3 described in the specification.
(ii) In the Comparative Example b, filtering quality data are added to a result of Example 2 described in the specification.
(iii) In the Comparative Example c, filtering quality data are added to a result of Example 7 described in the specification.
(iv) The Comparative Example d shows data that is newly added.
(v) In the Example A, filtering quality data are added to a result of Example 1 described in the specification.
(vi) The Examples B, C, D, E, and F show data that are newly added.
(vii) In the Experiment Nos. 10 and 11, filtering is performed without filtering aid and only by filtering paper.